

**COMPUTER APPARATUS AND METHOD FOR AUTONOMICALLY
DETECTING SYSTEM RECONFIGURATION AND MAINTAINING
PERSISTENT I/O BUS NUMBERING**

ABSTRACT OF THE DISCLOSURE

5 In a computer system that includes multiple physical enclosures, an enclosure
includes a non-volatile memory that includes bus numbering information for its own buses
as well as bus numbering information for one or more of its neighbors. In the preferred
implementation, all enclosures include a non-volatile memory that includes bus numbering
information for its own buses and for both of its neighbors. This creates a distributed
10 database of the interconnection topology for the computer system. Because an enclosure
contains bus numbering information about its neighbor enclosure(s), the bus numbers for
the buses in the physical enclosures are made persistent across numerous different system
reconfigurations. The preferred embodiments also include a bus number manager that
reads the non-volatile memories in the physical enclosures during initial program load (*i.e.*,
15 boot) that reconstructs the interconnection topology from the information read from the
non-volatile memories, and that assigns bus numbers to the buses according to the derived
interconnection topology.